

WISCONSIN COLORECTAL CANCER

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**Bureau of Health Information
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Wisconsin Colorectal Cancer

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Note: The reader will note the most current year for published data ranges from 1995 to 1999, depending on the source available at the time of the update.

Introduction

Report Scope: This report is primarily based on information from the Wisconsin Cancer Reporting System (WCRS), which collects cancer incidence and mortality data on Wisconsin residents, and the Wisconsin Behavioral Risk Factor Survey (BRFS), which focuses on health-risking behaviors. Both are part of the Bureau of Health Information, Department of Health and Family Services. The report presents the following information on colorectal cancer:

- Wisconsin cancer incidence and mortality summary statistics
- National incidence and mortality cancer statistics
- Risk factors
- Screening guidelines
- Current cancer research
- Sources for additional information

This report focuses on **invasive** colorectal cancer incidence to facilitate comparisons between state and national data, as well as with other state cancer publications. The only change in focus is the section about stage of diagnosis, which provides information about *in situ* (pre-invasive) and **invasive** stages of colorectal cancer.

Report Purpose: The purpose of this report is to integrate statistical and general educational information in a summary format that is useful to a general audience. The Wisconsin Cancer Reporting System received funding from the Centers for Disease Control and Prevention (CDC) for this report to expand dissemination of cancer data under the Cancer Registries Enhancement Grant.

Wisconsin Cancer Reporting System: WCRS has collected cancer incidence data on Wisconsin residents since 1976 as mandated by Wisconsin State Statute 255.04. In 1994, WCRS started a cooperative agreement with CDC and became part of the National Program of Cancer Registries, as authorized by the Cancer Registries Amendment Act (Public Law 102-515).

Cancer incidence statistics are compiled from all cases of malignant tumors for Wisconsin residents reported to WCRS (except basal and squamous carcinoma of the skin) from hospitals, clinics, physician offices, and cooperating out-of-state registries. Cancer incidence reflects the number of newly diagnosed cancers in the population. Cancer mortality data are derived from resident death certificates collected by the Vital Records Section, Bureau of Health Information. Cancer mortality rates are based on the underlying cause of death recorded on the death certificate.

Wisconsin Behavioral Risk Factor Survey: The Wisconsin BRFS is a representative, statewide telephone survey of Wisconsin household residents age 18 years and older. The survey collects data on health risk behaviors, including the percentage that follow public health recommendations for cancer screenings and dietary practices.

What is colorectal cancer?

The colon and rectum, part of the body's digestive system, are also known as the large intestine, or the bowel. The large intestine is made up of the colon, approximately 5-6 feet in length, and the rectum, the last 8-10 inches of the large intestine.

Colon or rectal cancer is the uncontrolled growth of cells in the colon or rectum. The extra cells form a tumor. When there is an abnormal growth of cells, a mass of tissue (polyp) is formed, and when it invades the wall of the rectum or colon, it becomes a cancer. The tumor disrupts blood vessels in the colon or rectum and can obstruct normal bowel function. Within the large intestine, about 72% of cancers are in the colon and 28% are in the rectum. Cancers of these areas are often referred to jointly as colorectal cancer.

What are the known risk factors for colorectal cancer?

According to the American Cancer Society and National Cancer Institute, the following factors are associated with a higher risk of developing colorectal cancer:

- **Increasing age**
- **Diet high in fat (from animal food sources)**
- **Physical inactivity**
- **Obesity**
- **Smoking**
- **Personal medical history (certain cancers)**
- **Intestinal polyps**
- **Inflammatory bowel disease**
- **Family medical history (certain cancers and genetic conditions)**

Increasing Age. Colorectal cancer is more likely to occur as people get older. About 90% of people with colorectal cancer are older than 50, although it can occur at any age.

High-Fat Diet. In some studies, the development of colorectal cancer has been associated with a diet that is high in fat from animal sources, such as red meat. (Cancer preventive diets should include more fruits and vegetables, according to the American Cancer Society.) In Wisconsin, a survey of adults conducted in 1998 found only 26 percent reported adequate consumption of fruits and vegetables, defined as five or more servings each day (1). National consumption of fruits and vegetables was similar (24 percent ate five or more servings a day). Wisconsin women reported daily consumption of fruits and vegetables at this level more frequently than men (31 percent of women compared with 19 percent of men).

Physical Inactivity. Physical inactivity is associated with a higher risk of colorectal cancer. In a 1998 survey, over half (54 percent) of Wisconsin adults were sedentary, reporting no regular leisure-time physical activity (less than 20 minutes of activity per session and/or less than three times per week) during the past month (1).

Obesity. Being overweight increases the risk of developing colorectal cancer, particularly if the excess fat is in the waist area. A 1999 survey found 34 percent of Wisconsin adults and 34 percent of adults in the U.S. were overweight (1).

Smoking. According to the American Cancer Society, smokers are 30 percent to 40 percent more likely than nonsmokers to die of colorectal cancer. Some carcinogenic substances from smoking tobacco are swallowed and contribute to colorectal cancer. In 1999, 24 percent of Wisconsin adults, and 23 percent of adults nationally, reported they were current smokers (1).

Personal Medical History. Patients with a history of ovarian, uterine or breast cancer have an increased risk for colorectal cancer. A history of colorectal cancer also increases the risk of new colorectal cancers developing in other areas of the colon or rectum.

Intestinal Polyps. Polyps are benign growths on the inner wall of the colon and rectum and are relatively common in people over 50. Many colorectal cancers develop from polyps, so early detection and removal of polyps may prevent colorectal cancer.

Inflammatory Bowel Disease. People with inflammatory bowel disease (IBD) are at increased risk of colorectal cancer. Two IBD conditions, ulcerative colitis and Crohn's disease, are associated with colorectal cancer, and the magnitude of risk increases with early age at diagnosis, longer duration of symptoms, and severity of inflammation and dysplasia (microscopic evidence of cell abnormality).

Family Medical History. Family histories of colorectal cancer or polyps have been associated with an increased risk of colorectal cancer. First-degree relatives (parents, siblings, children) of a person who developed colorectal cancer are more likely to also develop this cancer. If the cancer is found at a young age or among several family members, the risk is further increased. A small percent of colorectal cancers are related to familial polyposis and other rare conditions, such as Gardner's syndrome and hereditary nonpolyposis colon cancer.

What are the symptoms of colorectal cancer?

Although many people develop colorectal cancer before symptoms are apparent, there are some common symptoms that should not be ignored. Especially people over 40 or with a personal or family history of the disease should discuss any symptoms with their doctor. According to the American Cancer Society and the National Institutes of Health, the following are symptoms of colorectal cancer:

- A change in bowel habits (such as diarrhea, constipation, or narrowing of the stool) that lasts more than a few days.
- A feeling that the bowel does not empty completely.
- Rectal bleeding or blood in the stool.
- Cramping or steady abdominal pain.
- Decreased appetite.
- Weakness and fatigue.
- Jaundice (yellow-green discoloration of the skin and white part of the eye).
- Vomiting.

What is the incidence of colorectal cancer in Wisconsin?

Gender. In 1998, approximately 13 percent of new cancer cases among both men and women were colorectal cancers. Colorectal cancer is the third most frequent cancer among men, following prostate and lung cancers, and the third most frequent among women, following breast and lung cancers. Colorectal incidence rates (newly diagnosed cases) were higher for men than women in Wisconsin and the United States (Table 1).

**Table 1. Colorectal Cancer Incidence Rates by Sex
in Wisconsin and United States, 1997
(Rates per 100,000 population)**

	Wisconsin	United States
Males	55	53
Females	42	37
Both sexes	48	44

Sources: Cancer Reporting System, Bureau of Health Information, 2000; SEER Cancer Statistics Review 1973-1997, National Cancer Institute, 2000.

Note: Male rates are per 100,000 male residents, female rates are per 100,000 female residents, and total rates (both sexes) are per 100,000 residents. All rates are age-adjusted to the 1970 United States population.

Age. The incidence of colorectal cancer increases with age and rises sharply after age 50; 93 percent of new cases in Wisconsin in 1998 were among people aged 50 and older. Fifty-nine percent of cases were found among those aged 70 and over (2).

Race. For the years 1993-1997, colorectal cancer incidence rates among African-American and white males in Wisconsin were higher than comparable national rates (Table 2) (4). White females in Wisconsin also had a higher rate of colorectal cancer incidence than their national counterparts, but African-American females in Wisconsin had a rate virtually identical to African-American females nationally.

**Table 2. Colorectal Cancer Incidence Rates by Race
and Sex in Wisconsin and United States, 1993-1997
(Rates per 100,000 population)**

	Wisconsin		United States	
	Male	Female	Male	Female
African-American	61.5	44.1	57.8	44.7
White	58.1	41.2	52.0	36.8
All races	58.9	41.6	52.4	37.2

Sources: Cancer in North America 1993-1997. Vol. 1, Incidence. North American Association of Central Cancer Registries, 2000. SEER Cancer Statistics Review 1973 -1997, National Cancer Institute, 2000.

Note: African-American rates are per 100,000 African-American residents, white rates are per 100,000 white residents, and total rates (all races) are per 100,000 residents. All rates are age-adjusted to the 1970 United States population.

At what stage is colorectal cancer diagnosed in Wisconsin?

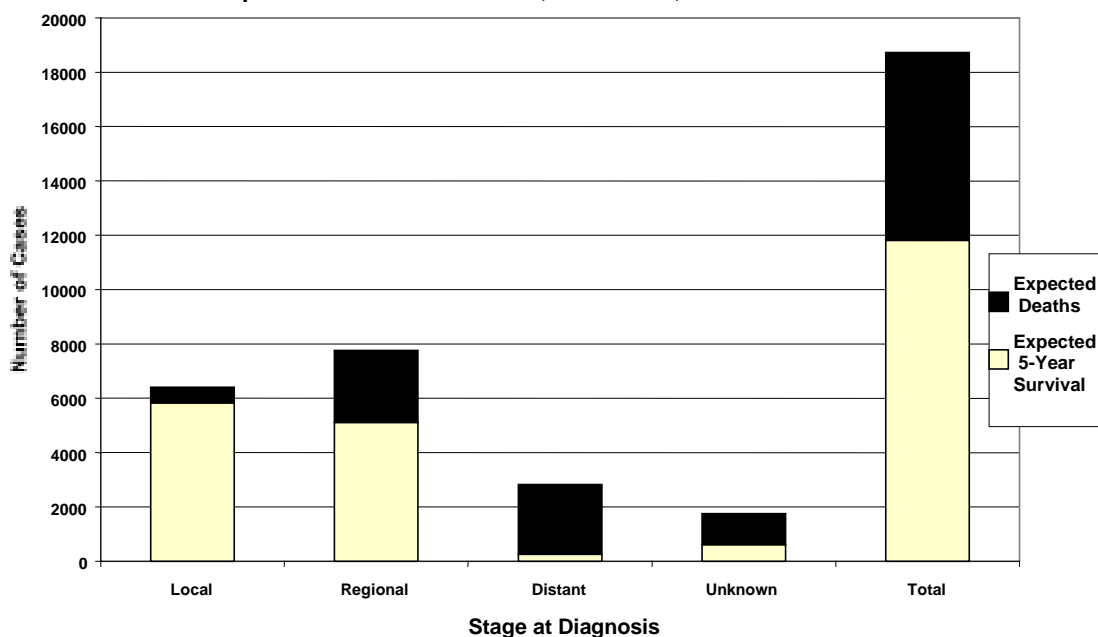
Survival is usually increased when colorectal cancer is identified early and appropriate treatment received. The stage at diagnosis is classified according to the extent of metastasis (cancer growth) when first detected by a physician. Three commonly used stages are:

- Local – The cancer has penetrated the inner colon wall, but has not spread to the outer wall of the colon.
- Regional – The cancer has spread outside the colon wall to nearby tissue and/or to nearby lymph nodes, but it has not spread to other remote parts of the body.
- Distant - The cancer has spread to distant organs of the body, such as the liver or lung.

Generally, the stage at which colorectal cancer is diagnosed is critical because survival increases proportionately with earlier detection. Survival is generally defined by the National Cancer Institute (NCI) as living five years after a diagnosis of cancer, whether in remission, free of cancer, or under treatment (3). During 1998, 36 percent of invasive colorectal cancers in Wisconsin were diagnosed at the early local stage. The five-year expected survival for those patients, based on the most recent national estimates from NCI, is 90%. (3). Forty-two percent of colorectal cancers were diagnosed at the regional stage; approximately 65 percent of those patients are expected to survive five years. Seventeen percent of cases were not detected until the distant stage; an estimated 8 percent of these patients are expected to survive five years. (Five percent of Wisconsin cases were reported with no information about the stage of disease.) Figure 1 shows the number of Wisconsin colorectal cancer cases diagnosed during 1989-1996 according to stage of diagnosis and expected survival according to NCI survival estimates.

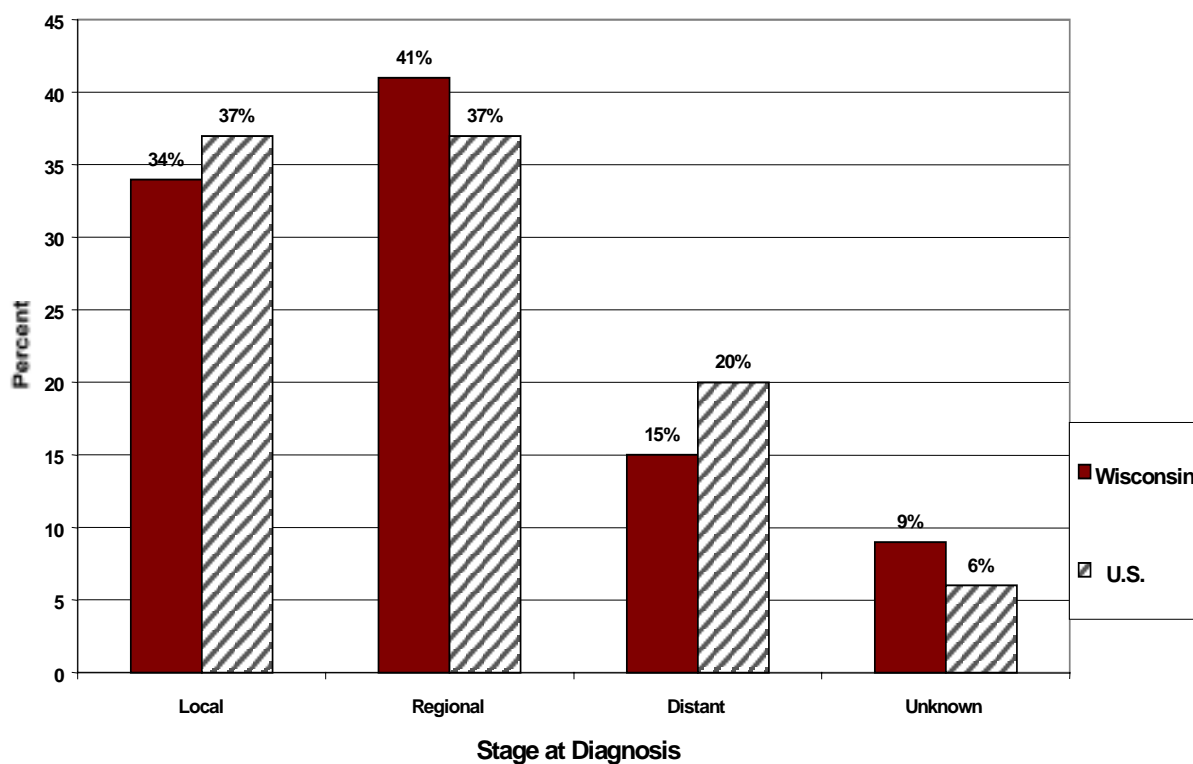
Nationally, during 1989-1996, 37 percent of colorectal cancers were detected in the localized stage, 37 percent at a regional stage, and 20 percent at a distant stage. Figure 2 shows stage at diagnosis for the nation and Wisconsin during this eight-year time period.

Figure 1. Number of Colorectal Cancer Cases by Stage at Diagnosis and Expected Five-Year Survival, Wisconsin, 1989-1996



Source: Cancer Reporting System/SEER Cancer Statistics Review 1973-1997, National Cancer Institute

Figure 2. Stage at Diagnosis for Colorectal Cancer in Wisconsin and United States, 1989-1996



Source: Cancer Reporting System/SEER Statistics Review 1973-97, National Cancer Institute

What is the colorectal cancer mortality rate in Wisconsin?

Gender. Colorectal cancer accounts for 10 percent of all cancer deaths in Wisconsin, second only to lung cancer. It is the third leading cause of cancer deaths for men after lung and prostate cancer, and third for women after lung and breast cancer.

The Wisconsin 1998 colorectal cancer mortality rate of 16 per 100,000 population was the same as the national rate. The Wisconsin mortality rate was 19 among males and 13 among females, per 100,000. Generally, for both the nation and Wisconsin, men are somewhat more likely than women to die from colorectal cancer.

Age. Colorectal cancer mortality increases steadily with age, with 96 percent of deaths in 1998 occurring among those aged 50 or older, and 38 percent of deaths occurring among those 80 or older.

Race. The Wisconsin colorectal cancer mortality rate for 1993-1997 was higher for African American men than white men. National data for the same time period show an even greater disparity between races due to higher mortality among African-Americans (Table 3) (3).

Table 3. Colorectal Cancer Mortality Rates by Race and Sex in Wisconsin and United States, 1993-1997
(Rates per 100,000 population)

	<i>Wisconsin</i>		<i>United States</i>	
	Males	Females	Males	Females
African-American	22.2	15.4	27.5	19.7
White	20.5	13.5	20.6	13.9
All races	20.6	13.6	21.0	14.4

Source: Cancer in North America 1993-1997. Vol. 2, Mortality. North American Association of Central Cancer Registries, 2000. SEER Cancer Statistics Review 1973-1997, National Cancer Institute, 2000.

Note: African-American mortality rates are per 100,000 African-American residents, white rates are per 100,000 white residents, and total rates (all races) are per 100,000 residents. All rates are age-adjusted to the 1970 United State population.

How have colorectal cancer incidence and mortality changed over time?

In Wisconsin from 1990 to 1997, colorectal cancer incidence rates and mortality rates both declined. The 1990 incidence rate of 52 per 100,000 population declined to 48 per 100,000 in 1997. The mortality rate declined from the 1990 rate of 20 per 100,000, to the 1997 rate of 16 per 100,000. These decreases are attributed to increased screening and greater awareness of the need for annual examinations to detect colorectal cancer before symptoms are apparent.

National figures also reveal a decline in colorectal cancer incidence and mortality. Table 4 presents the 1990 and 1997 Wisconsin and United States rates.

**Table 4. Colorectal Cancer Incidence and Mortality Rates
in Wisconsin and the U.S., 1990 and 1997
(Rates per 100,000 population)**

	1990	1997
Incidence Rate		
Wisconsin	52	48
United States	48	44
Mortality Rate		
Wisconsin	20	16
United States	19	16

Source: Cancer Reporting System, Bureau of Health Information, 2000; SEER Cancer Statistics Review 1973-1997, National Cancer Institute, 2000.

Note: Wisconsin incidence and mortality rates are per 100,000 Wisconsin residents, United States incidence and mortality rates are per 100,000 United States residents. All rates are age-adjusted to the 1970 United States population.

What are the screening tests for colorectal cancer?

People who have any risk factor should ask their physician when to begin screening for colorectal cancer. Screening tests are used to check for disease in people who have no symptoms. In many cases, these tests can detect cancer at an early curable stage. Cancer may also be detected early if people report symptoms immediately to their physicians. Colorectal polyps are sometimes detected and removed during screening. There are several tests used for screening colorectal cancer.

- **Rectal examination**
- **Fecal occult blood test**
- **Sigmoidoscopy**
- **Colonoscopy**
- **Double contrast barium enema**

Rectal Examination. The doctor inserts a gloved finger into the rectum and gently feels for irregular areas or bumps. It is a simple and quick test that is commonly used and may detect rectal cancers within about 5 inches of the anus.

Fecal Occult Blood Test (FOBT). A stool sample is examined for blood that may be unseen. A test kit is taken home to collect the sample and then returned to the doctor's office to be analyzed.

Sigmoidoscopy. The doctor looks for cancer in the rectum and lower colon with a slender, flexible lighted tube called a sigmoidoscope. This allows the doctor to examine the inside of the rectum and lower colon, and if polyps are found they may be removed.

Colonoscopy. The doctor looks for cancer in the rectum and the entire colon with a slender, flexible lighted instrument that allows the detection, removal, and biopsy of polyps during a single medical procedure. Colonoscopy may also be used as a follow-up diagnostic test when the results of other screening tests are positive.

Double Contrast Barium Enema. Several x-rays are taken of the large intestine after the patient is given an enema with a chalky solution that contains barium to highlight the colon on the x-rays. This test may also be used as a follow-up diagnostic test if earlier screening tests are positive.

What are the screening options for colorectal cancer?

The Centers for Disease Control and Prevention (CDC) lists screening options from the U.S. Preventive Services Task Force, American Cancer Society and an Interdisciplinary Task Force (5,6). Screening tests should be considered in consultation with a physician. Some common screening options are:

- Annual fecal occult blood testing (FOBT), and/or periodic flexible sigmoidoscopy;
- Annual FOBT, along with flexible sigmoidoscopy every 5 years;
- A total colon examination by colonoscopy every 10 years or by double contrast barium enema (DCBE) every 5-10 years;
- A digital rectal examination (DRE) along with sigmoidoscopy or total colon examination.

According to the CDC, two of the above tests have proven beneficial in studies for screening people without symptoms for colorectal cancer:

- FOBT - A randomized control study in the United States found a 33 percent reduction in colorectal cancer mortality in the group screened annually with FOBT (8).
- Flexible sigmoidoscopy detects about 65-75 percent of polyps and 40-65 percent of colorectal cancers (8).

People at higher risk should undergo more intensive surveillance as guided by their health care provider. According to the American Cancer Society, people who have the following risk factors should seek medical advice.

- A family history of colorectal cancer or polyps
- A personal history of colorectal cancer or polyps
- A personal history of inflammatory bowel disease
- Familial or hereditary nonpolyposis colorectal cancer or familial adenomatous polyposis

How many Wisconsin residents are screened for colorectal cancer?

Results from the Wisconsin Behavioral Risk Factor Survey (BRFS), part of the Centers for Disease Control and Prevention national surveillance system, show a lower level of screening for colorectal cancer in Wisconsin than is recommended by major cancer organizations. The American Cancer Society (ACS) and the U.S. Preventive Services Task Force recommend the use of specific screening tests. The most commonly recommended are an annual FOBT and a sigmoidoscopy every 5 years for asymptomatic persons aged 50 or older.

Fecal Occult Blood Test (FOBT)

Recommended Screening. In the 1999 BRFS, 15 percent of people aged 50 and older in Wisconsin reported having had an FOBT within the past year, the recommended screening interval for this test. (See "What are the screening options for colorectal cancer?" above.) The Centers for Disease Control and Prevention reported that only 21 percent of all Americans aged 50 or older has this test in the year preceding the survey (9).

Gender. Wisconsin men were less likely to have ever had this test than were women; 27 percent of men compared with 35 percent of women reported in the survey that they ever used a home test kit. Nationally, the same proportions (27 percent of men and 35 percent of women) reported ever having used an FOBT test (10).¹

Age. The proportion of Wisconsin adults who reported ever having had an FOBT increased with age; 29 percent of 50-59-year-olds, compared to 46 percent of those 65 and older, ever used the kit. The national percents were virtually the same (30 percent of 50-59-year-olds and 46 percent of those 65 and older having ever had had this test) (10).

Table 5 summarizes 1999 screening data for Wisconsin and national respondents reporting ever having had colorectal cancer screening tests.

¹ National figures for FOBT are medians of all BRFS participants (52, including Puerto Rico and the District of Columbia).

Table 5. Percent of Wisconsin and U.S. Residents Who Ever Received Colorectal Screening, by Sex and Age, 1999

	Fecal Occult Blood Test		Sigmoidoscopy/colonoscopy	
	(%) Wisconsin	(%) U.S.	(%) Wisconsin	(%) U.S.
Sex				
Men	27	27	42	34
Women	35	35	40	33
Age				
40-49	14	14	20	16
50-59	29	30	45	33
60-64	50	40	50	45
65+	46	46	59	51
Total Adult Population	32	31	41	34

Source: Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention, 2001.

Sigmoidoscopy

Recommended screening. In 1999, 36 percent of Wisconsin residents aged 50 years and older reported having had a sigmoidoscopy or colonoscopy within 5 years, the recommended screening interval for this test. (See "What are the screening options for colorectal cancer?" above.) Wisconsin is close to the national median of 34 percent having received one of these screening tests within five years (9).

In 1999, an estimated 41 percent of all Wisconsin adults reported they ever had a sigmoidoscopy or colonoscopy for screening or diagnostic purposes, compared to an estimated 34 percent of the nation's adults (Table 5) (10).

Gender. In Wisconsin, 42 percent of men compared to 40 percent of women ever had a sigmoidoscopy or colonoscopy. Nationally, figures were lower for both men and women (34 percent and 33 percent, respectively).

Age. The proportion of Wisconsin adults who reported ever having had a sigmoidoscopy or colonoscopy increased with age, from 45 percent among 50-59-year-olds to 59 percent among those 65 and older. National figures were lower for all age groups but also reflect an increase with advancing age (33 percent among 50-59-year-olds to 51 percent among those 65 and older).

What is current in colorectal cancer research?

Current research suggests certain lifestyle choices may contribute to the prevention of colorectal cancer. Individuals with relatives who had colorectal cancer also may be at greater risk. Research studies on the same subject sometimes find different results because they vary in their sample selection, research design and time frame. **Therefore, any course of action based on research results should always be discussed with your physician in relation to your particular risk factors for colorectal cancer and your general health status.**

Most recent studies have not demonstrated that a low-fiber diet is a major risk factor for developing colon cancer, contrary to the accepted previous scientific opinion. Studies in the 1980s, and broadly drawn studies comparing industrialized Western countries (North America and western Europe) and more traditional cultures, found that populations with higher fiber intake had lower rates of colon cancer (11,12,13). However, three recent randomized controlled studies concluded that fiber had no protective or preventive benefit against colorectal cancer. Although one study was a 16-year national project, with over 88,000 women (34-59 years old), two of these recent studies were relatively short-term (three and four years), and dietary benefits from fiber consumption may be lifelong rather than short term. There is no current consensus of opinion about fiber as a preventive measure for colorectal cancer, but a high-fiber diet is still considered healthful for other conditions, including diabetes and heart disease (14,15,16).

Many studies have shown diets high or moderate in **fruits and vegetables**, as compared with lower levels of consumption, decrease the risk of colorectal cancer (17,18). Overall dietary patterns such as a "prudent" diet (that is, a high fruit and vegetable intake and a reduced intake of red meat) decreased the risk of colon cancer by one-third in a 1998 study of over 4,000 subjects (19). The National Academy of Sciences and National Cancer Institute (NCI) recommend a diet high in fruits and vegetables (20,21,22) for the general prevention of all cancers.

Diets with both **red meat and high fat** content have been implicated as risk factors for colorectal cancer. Some studies have found consumption of red meat is associated with an increased risk of colorectal cancer, but others have not found a direct association. Separating the effects of dietary meat from other foods such as vegetables fats, proteins, and fiber has been a challenge to researchers. Cooking techniques can also influence the formation of potential carcinogens and may contribute to study outcomes. Generally, high-protein and high-fat diets are believed to contribute to colorectal cancer (23,24,25).

Several large studies suggested **aspirin** could play a role in preventing colorectal cancer. A large ACS study in 1991 found the death rate from colorectal cancer was approximately 40 percent lower in subjects who used aspirin regularly, than in those who did not (26). Another large study in 1995 of over 120,000 nurses aged 30 to 55 found that subjects who took four to six aspirins a week for 20 years were less likely to develop colon cancer, compared with subjects who took less aspirin (27). In contrast to the majority of studies, a 1998 study at Brigham and Women's Hospital found that 22,000 healthy male physicians (the subjects of the study) aged 40-84 who took one regular aspirin every other day for five years gained no extra protection against colorectal cancer (28).

Calcium was reported in January 1999 as a possible preventive measure for colorectal polyps. A four-year study of over 800 subjects who had colorectal polyps (which may develop into colorectal cancer) found that taking daily calcium supplements reduced the recurrence of polyps, and reduced the number of those recurring (29). After 36 months, patients taking 1,200 milligrams of calcium had a 17% lower risk for new polyps and a 24% lower average number of polyps.

Dietary supplements of **selenium** have shown promise in early studies but more research is needed before public health recommendations can be made (30). A Harvard study of nearly 89,000 nurses found that taking a multivitamin with **folic acid** was found to reduce the risk of colon cancer in 5, 10, and 15-year follow-ups. The strongest effect, a 75 percent reduction in colon cancer incidence, did not appear for 15 years (31,32). A clinical trial of antioxidant

vitamins found no protective benefit against colorectal cancer in over 800 subjects taking **beta-carotene, vitamins C and E**, after 1- and 4-year follow-ups (33).

Postmenopausal estrogens have been associated with a reduced risk of colon cancer in several studies, particularly among women with long-term and recent use (34,35). A 1995 study of Wisconsin women found that those taking postmenopausal hormone replacement therapy had a 46 percent lower incidence of colon cancer than those not taking replacement therapy (36).

Consistent with what is known about colorectal cancer development from polyps, a study at Columbia University found the **first-degree relatives** of individuals **who have colon polyps** face as high a risk of developing colorectal cancer as do people who have relatives with colorectal cancer (37). This study also found that people with relatives who have pre-cancerous polyps have almost twice the lifetime risk of developing colorectal cancer as the general population.

Smoking and alcohol have been associated with colorectal cancer. Two large studies of over 150,000 men and women published in 1994 found moderate or heavy smoking was associated with an increased incidence of colorectal cancer 35 years after smoking initiation. The studies also found a higher incidence of pre-cancerous polyps among cigarette smokers (38,39). A 1995 study of over 700 Wisconsin women with colorectal cancer found that reported smoking patterns were related to colorectal cancer. Greater intensity, frequency and earlier age at initiation of smoking increased the risk, and an increased risk persisted among former smokers (40). Many studies have found an association between alcohol and colorectal cancer, especially for men, heavy drinkers, and high levels of lifetime use (41). A study of Wisconsin women found that alcohol consumption of 11 or more drinks per week was associated an increased rate of colon cancer, and beer consumption was associated with rectal cancer (42).

A 1996 Surgeon General's Report stressed the benefits of **physical activity** for many different conditions including colorectal cancer (43). Some studies have linked a sedentary lifestyle to an increased risk of colorectal cancer (44).

Where can more information about colorectal cancer be found?

Wisconsin Cancer Reporting System, Wisconsin Department of Health and Family Services.

Internet: <http://www.dhfs.state.wi.us/wcrs/index.htm>

Provides online access to these published reports:

Wisconsin Cancer Incidence and Mortality, 1998 (annual report)

Wisconsin Behavioral Risk Factor Survey, 1999 (annual tables)

Reports may also be requested by mail from:

Wisconsin Department of Health and Family Services
Division of Health Care Financing
Bureau of Health Information
P.O. Box 309
Madison, WI 53701-0309

For more information from national cancer organizations:

American Cancer Society
Telephone: 1-800-ACS-2345
Internet: <http://www.cancer.org>

National Cancer Institute
Telephone: 1-800-4-CANCER
Internet: <http://www.nci.nih.gov>

Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Telephone: 1-770-488-4751
Internet: <http://www.cdc.gov/cancer>

National Colorectal Cancer Action Campaign
Internet: <http://www.cdc.gov/cancer/screenforlife>

Colorectal Cancer Prevention and Control Initiatives
Internet: <http://www.cdc.gov/cancer/colorectal/index.htm>

American Gastroenterological Association
Telephone: 1-301-654-2055
Internet: <http://www.gastro.org>

Medicare-Colorectal Cancer Screening Information
Internet: <http://www.medicare.gov/Health/ColonCancer.asp>

For more information from cancer research/treatment centers:

Harvard Center for Cancer Prevention
Internet: <http://www.hsph.harvard.edu/cancer>

Mayo Clinic Cancer Information (click on “Diseases and Conditions A-Z”)
Internet: <http://www.mayoclinic.com>

Johns Hopkins Cancer Center
Internet: <http://www.hopkinskimmel/cancercenter.org>

Memorial Sloan-Kettering Cancer Center
Internet: <http://www.mskcc.org/>

Froedtert & Medical College Cancer Center
Internet: <http://www.froedtert.com/medical/cancer/index.html>

M.D. Anderson Cancer Center

Internet: <http://www.mdanderson.org/Diseases/Colorectal>

University of Wisconsin Comprehensive Cancer Center

Internet: <http://www.cancer.wisc.edu>

University of Pennsylvania Cancer Center - Oncolink

Internet: <http://www.oncolink.upenn.edu/disease/colon>

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